

## CLAIMS

I claim:

1. A covered roll comprising:
  - a. a roll core base;
  - b. an under-layer formed of densely packed fibers and infused with a thermoset resin, said under-layer circumferentially surrounding said roll core base; and,
  - c. a covering layer formed of a thermoset resin circumferentially surrounding said under-layer.
2. The covered roll of Claim 1 wherein said covering layer comprises a helically wound strip of rubber.
3. The covered roll of Claim 1 wherein said covering layer comprises at least one sheet of rubber.
4. The covered roll of Claim 1 wherein said covering layer comprises a plurality of rubber sheets.
5. The covered roll of Claim 1 wherein said covering layer comprises a helically wound fabric strip impregnated with a thermoset resin.
6. The covered roll of Claim 1 wherein said covering layer comprises urethane.
7. The covered roll of Claim 6 wherein said covering layer is applied to said under-layer by casting.
8. The covered roll of Claim 6 wherein said covering layer is applied to said under-layer by extrusion.
9. The covered roll of Claim 6 wherein said urethane is applied as a strip.

10. The covered roll of Claim 1 wherein said under-layer includes straight continuous fibers oriented parallel to the central axis of the roll core base.

11. The covered roll of Claim 10 wherein said under-layer includes straight continuous fibers oriented perpendicular to the central axis of the roll core base.

12. The covered roll of Claim 1 wherein said under-layer includes straight continuous fibers oriented perpendicular to the central axis of the roll core base.

13. The covered roll of Claim 1 wherein said under-layer is comprised of a single continuous layer of fiber material.

14. The covered roll of Claim 1 wherein said under-layer comprises a plurality of layers.

15. The covered roll of Claim 14 wherein at least one of said plurality of layers is comprised of straight continuous fibers oriented parallel to the central axis of the roll core base.

16. The covered roll of Claim 15 wherein at least one of said plurality of layers is comprised of straight continuous fibers oriented perpendicular to the central axis of the roll core base.

17. The covered roll of Claim 16 wherein at least one of said plurality of layers is comprised of fibers arranged in a random pattern.

18. The covered roll of Claim 1 wherein said thermoset resin for infusing said under-layer comprises epoxy resin.

19. The covered roll of Claim 1 wherein said thermoset resin for infusing said under-layer comprises vinyl ester.

20. The covered roll of Claim 14 wherein at least one layer of said plurality of layers comprises a two-ply construction having a first ply and a second ply, said first ply including densely packed fibers arranged in a random pattern, said second ply including densely packed fibers that unidirectional in orientation.

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a7 21. A method for producing a covered roll, the covered roll having a multi-layered construction, said method comprising the steps of:

- a. providing a roll core base, the roll core base having two ends, a length therebetween, and an outer surface;
- b. tightly wrapping a dry under-layer formed of densely packed fibers circumferentially around said roll core base;
- c. applying a covering layer over the dry under-layer; and,
- d. infusing a thermoset resin into the dry under-layer.

22. A method as in Claim 21 wherein said step of infusing a thermoset resin into the dry under-layer includes the sub-steps of:

- a. drilling entrance and vacuum holes through the covering layer near opposite ends of the roll core base which extend into the under-layer;
- b. sealing off the entrance holes;
- c. creating a vacuum within the under-layer;
- d. sealing off the vacuum holes;
- e. unsealing the entrance holes; and,
- f. allowing the thermoset resin to infuse into the under-layer.

23. A method as in Claim 22 wherein said step of drilling further includes the sub-steps of:

- a. inserting valves into the entrance and vacuum holes; and,
- b. connecting the vacuum valves to a vacuum source.

24. A method as in Claim 21 wherein prior to said step of tightly wrapping a dry under-layer over the roll core outer surface, said method comprises the further step of applying an adhesive to the roll core outer surface.

54827 25. A method as in Claim 21 wherein said sub-steps b through f are carried out while the covered roll is oriented substantially horizontally.

26. A method as in Claim 21 wherein said sub-steps b through f are carried out while the covered roll is oriented substantially vertically.

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